

ABSTRACT OF THE DISCLOSURE

5 To detect the position of an object in a  
non-contact state at high reliability, high accuracy,  
and high resolving power, a linearly polarized light  
beam from a semiconductor laser source is converted  
into an almost parallel light beam by a collimator  
lens, transmitted through a non-polarization beam  
splitter, focused by an objective lens, and transmitted  
through a crystal plate. When an appropriate thickness  
10 t is given to the crystal plate, the principal rays of  
polarized light beams o and e emerge while being  
shifted by a predetermined amount and are focused into  
a spot or line having a width w near a slit-shaped  
marking (M) formed on a head arm whereby portions  
15 shifted from each other are illuminated. The two  
reflected light beams pass through the crystal plate.  
The principal rays of the two light beams match again  
and are returned to the non-polarization beam splitter,  
split into transmitted light and reflected light. The  
20 reflected light is split by a polarizing prism in  
accordance with the polarization planes of ordinary  
light beam (o) and extraordinary light beam (e). These  
light beams become incident on light receiving  
elements. A displacement of the marking (M) is  
25 detected on the basis of changes in signal levels of  
two signals output from the light receiving elements.